Chemical Analysis Report

SW-DIST-2016-03-08-01

Florida Department of Environmental Protection
Central Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **1329G**
Request ID: **RQ-2016-03-07-31**
Customer: **SW-DIST**
Project ID: **SMP**

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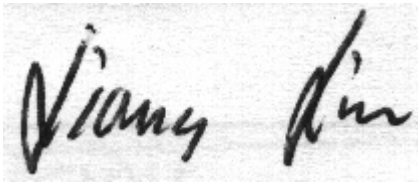
Certified by: Liang Lin, Environmental Administrator

Date Certified: 28-MAR-2016 11:45



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

A - Value reported is the mean of two or more determinations.
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value and/or the analysis did not meet established quality control criteria.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: G4SW0099 **Collection Date/Time: 03/07/2016 10:15**

Field ID: G4SW0099 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777858	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P299953	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P300213	
		Sulfate	0.24	I	mg SO4/L	P300216	
	SM 2120 B	Color (true)	470		PCU	P299989	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300453	
	SM 2540 C-97	TDS	98		mg/L	P300418	
	SM 2540 D-97	TSS	2	U	mg/L	P300129	
	SM 4500 F-C-97	Fluoride	0.074	I	mg F/L	P300457	
1777861	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P300474	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P300414	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300304	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P300446	
	SM 5310 B-00	Organic Carbon	55		mg C/L	P300326	
1777864	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P299959	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.
SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G5SW0109 **Collection Date/Time: 03/07/2016 12:25**

Field ID: G5SW0109 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777859	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P299953	
	EPA 300.0 Rev. 2.1	Chloride	20	A	mg Cl/L	P300213	
		Sulfate	7.1	A	mg SO4/L	P300216	
	SM 2120 B	Color (true)	97		PCU	P299989	
	SM 2320 B-97	Total Alkalinity	80		mg CaCO3/L	P300453	
	SM 2540 C-97	TDS	166		mg/L	P300418	
	SM 2540 D-97	TSS	8	I	mg/L	P300129	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P300457	
1777862	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P300474	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P300414	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P300304	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P300532	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P300326	
1777865	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P299959	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.
SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G5SW0110 **Collection Date/Time: 03/07/2016 12:55**

Field ID: G5SW0110 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Field ID: G5SW0110 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777860	EPA 180.1 Rev. 2.0	Turbidity	1.3	A	NTU	P299954	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P300213	
		Sulfate	9.3		mg SO4/L	P300216	
	SM 2120 B	Color (true)	85	A	PCU	P299989	
	SM 2320 B-97	Total Alkalinity	101		mg CaCO3/L	P300453	
	SM 2540 C-97	TDS	186	A	mg/L	P300418	
	SM 2540 D-97	TSS	2	I	mg/L	P300129	
	SM 4500 F-C-97	Fluoride	0.096	I	mg F/L	P300457	
1777863	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P300474	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P300421	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P300304	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P300532	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P300326	
1777866	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P299959	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.
SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299953

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299954

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300213

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300216

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300474

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300414

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300421

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300304

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300446

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300532

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299959

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B
Batch ID: P299989

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P300453

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P300418

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P300129

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300457

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P300326

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300213

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	107		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300216

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300474

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300414

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	91.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300532

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299959

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.8		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P300453

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P300457

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P300326

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	91.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777859	Chloride	106		P	90 - 110
1777885	Chloride	106		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777859	Sulfate	102		P	90 - 110
1777885	Sulfate	103		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777736	Kjeldahl Nitrogen	99.9	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777863	Kjeldahl Nitrogen	96.6	91.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777863	NO2NO3-N	97.2	96.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777735	Total-P	93.3	93.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777862	Total-P	96.1	92.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299959

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777865	O-Phosphate-P	94.7	95.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778103	Fluoride	98.2	98.9	P/P	94 - 107

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299953

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777728	Turbidity	11.5	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299954

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777860	Turbidity	7.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300213

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777859	Chloride	0.0791	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300216

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777859	Sulfate	1.51	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300474

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777880	Ammonia-N	0.269	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300414

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777736	Kjeldahl Nitrogen	3.61	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300421

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777863	Kjeldahl Nitrogen	3.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300304

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777863	NO2NO3-N	0.885	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300446

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777735	Total-P	0.600	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300532

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777862	Total-P	3.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299959

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777865	O-Phosphate-P	0.941	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P299989

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777860	Color (true)	0.972	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300453

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778103	Total Alkalinity	0.112	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P300418

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777860	TDS	2.68	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300457

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778103	Fluoride	0.516	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P300326

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777861	Organic Carbon	0.546	Spike	P	0 - 20

Quality Assurance Report
Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68081
Included Lab Sample IDs: 1777858, 1777859, 1777860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68082
Included Lab Sample IDs: 1777864, 1777865, 1777866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	96.4	P/P	90 - 110
O-Phosphate-P	98.1	97.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A68089
Included Lab Sample IDs: 1777858, 1777859, 1777860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	103	P/P	90 - 110
Chloride	102	104	P/P	90 - 110
Chloride	103	102	P/P	90 - 110
Sulfate	102	102	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A68095
Included Lab Sample IDs: 1777858, 1777859, 1777860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.2	99.5	P/P	85 - 115
Color (true)	98.3	98.1	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A68199
Included Lab Sample IDs: 1777861, 1777862, 1777863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A68205
Included Lab Sample IDs: 1777861, 1777862, 1777863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	94.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A68254
Included Lab Sample IDs: 1777858, 1777859, 1777860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	103	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A68254
Included Lab Sample IDs: 1777858, 1777859, 1777860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.0	P/P	90 - 110
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A68260
Included Lab Sample IDs: 1777861, 1777862, 1777863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68308
Included Lab Sample IDs: 1777861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68324
Included Lab Sample IDs: 1777863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.7	91.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68325
Included Lab Sample IDs: 1777861, 1777862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68352
Included Lab Sample IDs: 1777862, 1777863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	100	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					11.5	
	Turbidity					7.06	
EPA 300.0 Rev. 2.1	Chloride	107	106	106		0.0791	
	Sulfate	104	102	103		1.51	
EPA 350.1 Rev. 2.0	Ammonia-N	98.7					0.269
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.4	99.9	96.0			3.61
	Kjeldahl Nitrogen	91.6	96.6	91.7			3.54
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	97.2	96.2			0.885
EPA 365.1 Rev. 2.0	Total-P	94.3	93.3	93.8			0.600
	Total-P	97.7	96.1	92.6			3.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.8	94.7	95.8			0.941
SM 2120 B	Color (true)					0.972	
SM 2320 B-97	Total Alkalinity	103				0.112	
SM 2540 C-97	TDS					2.68	
SM 4500 F-C-97	Fluoride	98.1	98.2	98.9			0.516
SM 5310 B-00	Organic Carbon	91.4					0.546

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1777858, 1777859, 1777860
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1777858, 1777859, 1777860
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1777858, 1777859, 1777860
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1777861, 1777862, 1777863
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1777861, 1777862, 1777863
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1777861, 1777862, 1777863
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1777861, 1777862, 1777863
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1777864, 1777865, 1777866
SM 2120 B / E31780	True Color measured at 450 nm	1777858, 1777859, 1777860
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1777858, 1777859, 1777860
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1777858, 1777859, 1777860
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1777858, 1777859, 1777860
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1777858, 1777859, 1777860
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1777861, 1777862, 1777863

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/08/2016			03/08/2016 15:41	Sima Feizi	1777858, 1777859, 1777860
EPA 300.0 Rev. 2.1	03/08/2016			03/10/2016	Julia Storbeck	1777858, 1777859, 1777860
EPA 350.1 Rev. 2.0	03/08/2016			03/16/2016	Diana M. Turner	1777861, 1777862, 1777863
EPA 351.2 Rev. 2.0	03/08/2016	03/16/2016	Sofia Elnemr	03/18/2016	Christopher Armour	1777861, 1777862
	03/08/2016	03/16/2016	Sofia Elnemr	03/18/2016	Virginia P. Brown	1777863
EPA 353.2 Rev. 2.0	03/08/2016			03/11/2016	Diana M. Turner	1777861, 1777862, 1777863
EPA 365.1 Rev. 2.0	03/08/2016	03/16/2016	Christopher Armour	03/18/2016	Lipi Saha	1777861
	03/08/2016	03/17/2016	Christopher Armour	03/18/2016	Lipi Saha	1777862, 1777863
EPA 365.1 Rev. 2.0 dissolved	03/08/2016			03/08/2016 15:34	Ping Hua	1777865
	03/08/2016			03/08/2016 16:01	Ping Hua	1777864, 1777866
SM 2120 B	03/08/2016			03/08/2016 16:43	Blanca Fach	1777858
	03/08/2016			03/08/2016 17:02	Blanca Fach	1777860
	03/08/2016			03/08/2016 17:05	Blanca Fach	1777859
SM 2320 B-97	03/08/2016			03/15/2016	Dale L. Simmons	1777858, 1777859, 1777860
SM 2540 C-97	03/08/2016			03/08/2016	Yijie Li	1777858, 1777859, 1777860
SM 2540 D-97	03/08/2016			03/08/2016	Yijie Li	1777858, 1777859, 1777860
SM 4500 F-C-97	03/08/2016			03/15/2016	Dale L. Simmons	1777858, 1777859, 1777860
SM 5310 B-00	03/08/2016			03/12/2016	Sofia Elnemr	1777861, 1777862, 1777863